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1940 DUKE STREET				FIAŁKOWSKI, MICHAEL R
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)
	10/589,990	HAYAKAWA ET AL.
	Examiner MICHAEL FIAKOWSKI	Art Unit 2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 April 2009.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 18 August 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/89-06)

Paper No(s)/Mail Date May 11 2009

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

This office action is in response to amendments filed on April 6 2009. Claims 1-18 are pending with Claims 17 and 18 newly presented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1,2,9,10,17,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai et al (6,339,488) in view of Miles (6,665,495).

- (herein [X,X] in Beshai et al indicates [column, line(s)] in the corrected patent, which may appear after/in lieu of the original patent and/or certificate of correction)

Re claims 1 and 9, Beshai et al discloses a packet communication network comprising:

- at least two full-mesh wavelength-division-multiplexing transmission units (See Figure. 1, plurality of full-mesh nodes and Figure 27 for multiple optical nodes), each of which includes n number of interfaces, and is capable of establishing a bidirectional (bidirectional [5,65] - [6,2]) full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique (network comprises an optical core network having a number of optical nodes fully meshed by optical links [5,45-52], each link can be realized in a multi-wavelength optical circuit [5,55-60]) , where n is an integer equal to or greater than 3 (for example '7', See letters A-G in Figure 1);
- an edge-packet transfer unit (electronic edge switch [7,6-16]) that includes at least a packet recognizing unit (for example, recognizing the packet's destination [3,5-14], [10, 63-67]), an external-packet transmitting/receiving unit (See labels 42 and 46 in Figure 2), and an internal-packet transmitting/receiving unit (See labels 50 and 52 in Figure 2), and is connected to the interface of the full-mesh wavelength-division-multiplexing transmission unit (See connection of 18, for example, to full mesh in Figure 1) ; and

- an internetwork connection unit (for example, an electronic edge switch connected to a global optical node [14, 25-35]) that includes at least a packet recognizing unit (recognizes destination [10,63-67] and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the edge-packet transfer units (electronic switches are divided into subnets and each global node may serve a subset [14, 35-45], See also Figure 27) , wherein
- the external-packet transmitting/receiving unit of the edge-packet transfer unit inputs a packet received from outside (ingress port) to the internal-packet transmitting/receiving unit (core) , and transmits a packet output from the internal-packet transmitting/receiving unit to the outside (core to egress) (See Figure 2 and [7,6-16]),
- the internal-packet transmitting/receiving unit of the edge-packet transfer unit transmits the packet input from the external-packet transmitting/receiving unit to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the edge-packet transfer unit that is the destination of the packet identified by the packet recognizing unit (at each node, external traffic is buffered into separate queues according to destination [10,63-67]), if the destination of the packet identified by the packet recognizing unit is other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, transmits the packet input from the external-packet transmitting/receiving unit to the wavelength path of the full-mesh

wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit (each switch has a link matching the wavelength set used to access each optical node [12,50-60]), and if the destination of the packet identified by the packet recognizing unit is the edge-packet transfer unit of its own or the edge-packet transfer unit that is not connected to the full-mesh wavelength-division-multiplexing transmission unit, transmits the packet input from the external-packet transmitting/receiving unit to the external-packet transmitting/receiving unit, and the packet transmitting/receiving unit of the internetwork connection unit transmits the packet received from the edge-packet transfer unit to the edge-packet transfer unit that is the destination of the packet identified by the packet recognizing unit (Can transmit from external to core or core to external, See Figure 2 and [7,6-16]).

Beshai et al does not explicitly disclose the packet recognizing units of the edge-packet transfer unit and the internetwork connection unit identify the edge-packet transfer unit that is a destination of a packet from a header of the packet. However, Miles et al teaches of using a packet recognizing unit (packet classification queue) to identify the edge-packet transfer unit (egress edge unit) that is a destination of a packet from a header of the packet ([col 20, lines 3-27] , [col. 27, line 63 – col. 28, lines 32]). It would have been obvious for one of ordinary skill in the art at the time of the invention to route optical traffic based on a destination in the header of the packet as taught by Miles et al in the system of Beshai et al in order to route packets effectively to a destination and not have packets routed randomly throughout a network.

Re claims 2 and 10, Beshai et al discloses the packet communication network

wherein

- the full-mesh wavelength-division-multiplexing transmission units include physically-independent plural full-mesh wavelength-division-multiplexing transmission units arranged in parallel (See Figure 26, for two different full-mesh transmission units (labeled 610 containing the rings in parallel),
- the edge-packet transfer unit includes a first edge-packet transfer unit (Figure 26, label 612 on top) connected to one of the full-mesh wavelength-division-multiplexing transmission units (labeled 610) and the internetwork connection unit (labeled 610 directly connected to 612, optical node serves as connection to another edge-switch) ; and a second edge-packet transfer unit connected to all of the full-mesh wavelength-division-multiplexing transmission units (Figure 26, label 612 (lower) electronic switch is connected to all WDM nodes),
- the internetwork connection unit ((for example, an electronic edge switch connected to a global optical node [14, 25-35])) includes a switching unit (see for example, see Figure 18, node 302) that is provided on an input side of the packet transmitting/receiving unit and switches over destinations of a plurality of packets received from a plurality of first edge-packet transfer units (304 in Figure 18) connected to the full-mesh wavelength-division-multiplexing transmission units (300 (top and bottom) , respectively, to determine a plurality of other first edge-packet transfer units connected to a plurality of other full-mesh wavelength-

division-multiplexing transmission units that are the destinations of the packets (each switch has a one outgoing link to carry a channel matching the wavelength set used in the optical node [12,50-60]), and

- the internal-packet transmitting/receiving unit of the second edge-packet transfer unit (Figure 18, non-labeled nodes similar to 304 on right side of figure) transmits the packet input from the external-packet transmitting/receiving unit simultaneously to same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units corresponding to the first edge-packet transfer unit or the second edge-packet transfer unit that is the destination of the packet identified by the packet recognizing unit (Can transmit from external to core or core to external, See Figure 2 and [7,6-16], [10,63-67]), if the destination of the packet identified by the packet recognizing unit is other first edge-packet transfer unit or second edge-packet transfer unit connected to the full-mesh wavelength division multiplexing units, transmits a plurality of packets input from the same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units simultaneously (See Figures 15 and 17) to the same-wavelength paths of the full-mesh wavelength division multiplexing units corresponding to the other first edge-packet transfer unit or second edge-packet transfer unit (each switch has a link matching the wavelength set used to access each optical node [12,50-60]), and if the destination of the packet identified by the packet recognizing unit is the second edge-packet transfer unit itself or first edge-packet transfer unit or second edge-packet transfer unit that is not connected to the full-mesh

wavelength division multiplexing units, selects one of the packets, and transmits the selected packet to the external-packet transmitting/receiving unit (core to egress) (See Figure 2 and [7,6-16], [10,63-67]).

Re claims 17 and 18, Beshai modified by Miles et al teaches the system according to claim 1 and 9, and Beshai et al further discloses wherein the internal packet transmitting/receiving unit further transmits the packet input from the external-packet transmitting/receiving unit to a same wavelength path of the full-mesh wavelength-division-multiplexing transmission unit, corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit (for example, optical circuits between electronic edge switches are allocated channels (and therefore wavelength path) with each channel associated with another electronic edge switch ([col. 9, lines 42-55]) , the next destination of the packet not being a final destination of the packet (for example, a packet routed from one network to another in Figure 27, with a destination of label 756), but does not explicitly disclose an information of the packet identified by the packet recognizing unit including a destination address and a packet type. However, Miles et al teaches of an information of the packet identified by the packet recognizing unit including a destination address (destination address) and a packet type (for example, QoS type) ([col 20, lines 3-27] , [col, 27, line 63 – col. 28, lines 32]). It would have been obvious for one of ordinary skill in the art at the time of the invention to route optical traffic based on a destination in the header of the packet as taught by Miles et al in the system of Beshai

et al in order to route packets effectively to a destination and not have packets routed randomly throughout a network.

3. Claims 3-5, 11-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai et al in view of Miles et al as applied to claims 1,2,9 & 10 above, and further in view of Greenberg et al (6,970,451).

Re claims 3 and 11, Beshai et al modified by Miles et al teaches the packet communication system according to claims 2 and 10 as stated above, but does not explicitly disclose wherein the internetwork connection unit includes an important communication processing unit that extracts and compares important communication packets from the packets received from the first edge transfer units connected to the wavelength division multiplexing transmission units, respectively, and if there is a packet loss in one packet, copies other packet corresponding the one packet. However, Greenberg et al teaches of an important communication processing unit (unnamed) that extracts and compares important communication packets from the packets received from the first edge transfer units connected to the wavelength division multiplexing transmission units (nodes transmit relay and receive status information and commands and perform various diagnostics [7,36-50]) , respectively, and if there is a packet loss in one packet, copies other packet corresponding the one packet (nodes correct errors , for example if a laser fails, a backup laser may be activated, and reroute information, thus a copy of the original packet [9, 10-27]). It would have been obvious for one of ordinary skill in the art at the time of the invention in the area of wavelength division

multiplexing in a network to copy a packet if there is a packet loss as taught by Greenberg et al in the modified system of Beshai et al in order to correct for packet loss.

Re claims 4 and 12, Beshai et al modified by Miles et al teaches the packet communication system according to claims 1 and 9, and Beshai et al further discloses wherein the edge-packet transfer unit includes a packet recognizing unit that identifies the edge-packet transfer unit that is the destination of the packet and a service (QOS control [6,53-56]) (for example, edge switch takes traffic from ADM (optical node) and diverts it back to the core [6, 44-50] and edge switch routes optical traffic to other edge switches [col. 9, lines 43-55], based on destination, [10, 63-67] [11,35-63]); but does not explicitly disclose a header of the packet, a packet processing unit that processes the packet received from the external-packet transmitting/receiving unit into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing transmission unit if a communication method corresponding to the service identified by the packet recognizing unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit, and processes the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the internal-packet transmitting/receiving unit and output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit.

However, as stated above in the rejection of claims 1 and 9, Miles et al teaches using a header of the packet to route based on the destination ([col 20, lines 3-27] , [col, 27, line 63 – col. 28, lines 32]). It would have been obvious for one of ordinary skill in the art at the time of the invention to route optical traffic based on a destination in the header of the packet as taught by Miles et al in the system of Beshai et al in order to route packets effectively to a destination and not have packets routed randomly throughout a network. Miles et al does not explicitly teach a packet processing unit that processes the packet received from the external-packet transmitting/receiving unit into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing transmission unit if a communication method corresponding to the service identified by the packet recognizing unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit, and processes the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the internal-packet transmitting/receiving unit and output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit.

However, Greenberg et al teaches of a packet processing unit (OEC, Optical/electrical interface [10,7-17]) that processes the packet received from the external-packet transmitting/receiving unit (IP router [10,7-17]) into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing

transmission unit if a communication method corresponding to the service identified by the packet recognizing unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit (receives electrical signals from the IP router and converts the signals to optical form [10,47-55]), and processes the packet input from the full-mesh wavelength-division-multiplexing transmission unit (MDM – multiplexer / demultiplexer [10,7-17], which for example can include WDM signals [10,56-62]) to the internal-packet transmitting/receiving unit and output to the external-packet transmitting/receiving unit (IP router) into the packet form for the communication method (electrical signal) corresponding to the service identified by the packet recognizing unit (IP router can determine if a message relates to the IP protocol [10,63-67]) if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit (converts optical signal to an electrical form [10,47-55]). It would have been obvious for one of ordinary skill in the art at the time of the invention in the area of wavelength division multiplexing in a network to include a packet processing unit as taught by Greenberg et al in the modified system of Beshai et al in order to transfer packets from one type of communication method to another communication method.

Re claims 5 and 13, note that Beshai et al modified by Miles et al & Greenberg et al teaches the packet communication network according to claim 4 as stated above and further Beshai et al discloses a gateway unit (part of an edge switch) that connects a specific edge-packet transfer unit (traffic from optical core) and an external network (local sources) ([10,62-67]), and the external-packet transmitting/receiving unit

transmits the processed packet to the gateway unit corresponding to the external network (at ingress port external traffic is buffered according to destination [10,62-67]). Beshai et al does not explicitly disclose wherein the packet processing unit of the specific edge-packet transfer unit processes the packet output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the service is a service for connecting the specific edge-packet transfer unit and the external network. However, Greenberg et al teaches wherein the packet processing unit of the specific edge-packet transfer unit processes the packet output to the external-packet transmitting/receiving unit into the packet form (converts optical signal to an electrical form [10,47-55]) for the communication method corresponding to the service (IP router can determine if a message relates to the IP protocol [10,63-67]) identified by the packet recognizing unit if the service is a service for connecting the specific edge-packet transfer unit and the external network. It would have been obvious for one of ordinary skill in the art at the time of the invention in the area of wavelength division multiplexing in a network to include a packet processing unit as taught by Greenberg et al in the modified system of Beshai et al in order to transfer packets from one type of communication method to another communication method.

4. Claims 6-8, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beshai et al in view of Miles et al as applied to claims 1 and 9 above, and further in view of Drwiega et al (6,842,463).

Re claim 6 and 14, Beshai et al modified by Miles et al teaches the packet communication network according to claims 1 and 9 as stated above, but does not explicitly disclose wherein the edge-packet transfer unit includes a resource management unit that manages resource states of all of the wavelength paths related to an interface of each of the full-mesh wavelength-division-multiplexing transmission units, the interface connecting the edge-packet transfer unit; and a resource-information transfer unit that transfers information on the resource states as a packet. However, Drwiega et al teaches of an edge-packet transfer unit (edge node) including a resource management unit (system 202 in Figure 2, also [4,65-67]) that manages resource states of all of the wavelength paths related to an interface of each of the full-mesh wavelength-division-multiplexing transmission units (optical paths in WDM [2,10-15]) (for example, path selector has access to information about topology, capacity of links, and capacity that tunnels use [6, 36-46]); and a resource-information transfer unit (system 202) that transfers information on the resource states as a packet (for example, tunnel signaler sends messages to all the nodes reserving the new capacity [7, 40-47]). It would have been obvious for one of ordinary skill in the art at the time of the invention in the area of wavelength division multiplexing in a network to include a resource management unit as taught by Drwiega et al in the modified system of Beshai et al in order to control channel use effectively.

Re claim 7 and 15, Beshai et al modified by Miles et al & Drwiega et al teaches the packet communication system according to claims 6 and 14 as stated above, but does not explicitly disclose wherein when transmitting the packet input from the

external-packet transmitting/receiving unit or the full-mesh wavelength division multiplexing unit , the destination of which identified by the packet recognizing unit is the other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the internal-packet transmitting/receiving unit of the edge-packet transfer unit transmits the packet to other wavelength path if the resource state of the wavelength path is determined to be equal to or higher than a threshold based on resource state information on the wavelength path managed by the resource management unit. However, Drwiega et al teaches wherein when transmitting the packet input from the external-packet transmitting/receiving unit or the full-mesh wavelength division multiplexing unit , the destination of which identified by the packet recognizing unit is the other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the internal-packet transmitting/receiving unit of the edge-packet transfer unit transmits the packet to other wavelength path (alternate path [8,11-36]) if the resource state of the wavelength path is determined to be equal to or higher than a threshold (the increase request is refused and is forwarded to path selector[8,11-36]) based on resource state information (capacity of a given tunnel [7,55-65]) on the wavelength path managed by the resource management unit (capacity manager in system of 202). It would have been obvious for one of ordinary skill in the art at the time of the invention in

the area of wavelength division multiplexing in a network to include transmitting packets on a different path as taught by Drwiega et al in the modified system of Beshai et al in order to avoid bottleneck links (Drwiega et al [8,11-14]).

Re claim 8 and 16, Beshai et al modified by Miles et al & Drwiega et al teaches the packet communication system according to claims 6 and 14 as stated above, but does not explicitly disclose wherein a communication for exercising a call admission control by transmitting a call control packet of a call request or a call response to a control server that includes a call-admission control unit, the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the edge-packet transfer unit adds resource state information managed by the resource management unit to the call control packet when a type of the packet identified by the packet recognizing unit is the call control packet. However, Drwiega et al teaches wherein a communication for exercising a call admission control by transmitting a call control packet of a call request or a call response to a control server (system of 202, Figure 2) that includes a call-admission control unit (admission controller [5,46-60]) , the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the edge-packet transfer unit adds resource state information (sends an indication of the available capacity to the originator of the request [5,46-60]) managed by the resource management unit (system of 202, Figure 2) to the call control packet (request) when a type of the packet identified by the packet recognizing unit is the call control packet (admission controller monitors traffic for requests [5,46-60]). It would have been obvious for one of ordinary skill in the art at the time of the invention in the

area of wavelength division multiplexing in a network to include call admission control as taught by Drwiega et al in the modified system of Beshai et al in order to control admission control requirements (Beshai et al [11,25-30]).

Response to Arguments

5. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Further, Applicant is reminded that a rejection under 35 USC § 101 has not been made and thus the Examiner agrees that the claims are directed towards a system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL FIALKOWSKI whose telephone number is (571)270-5425. The examiner can normally be reached on Monday - Friday 9:30am-7pm EST, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Ryman can be reached on (571)272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. F./
Examiner, Art Unit 2419

/Daniel J. Ryman/
Supervisory Patent Examiner, Art Unit 2419